NESTING PLATFORMS FOR OSPREYS ON THE SNARE TRANSMISSION LINE: UPDATE FOR 1985-1987

Northwest Territories Renewable Resources

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NESTING PLATFORMS FOR OSPREYS ON THE SNARE TRANSMISSION LINE: UPDATE FOR 1985-1987

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ABSTRACT

Use of artificial nest platforms by ospreys on the Snare transmission line is documented for the years 1985-1987. Surveys of the line were conducted two or three times during the breeding season. A constant number of osprey pairs used the transmission line with 6-7 pairs successfully raising young in each of the 6 years between 1982 and 1987. After platforms were erected, they were used 73 percent of the time. Platform occupancy on the southern portion of the line is more erratic than platform usage on the northern section.

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INTRODUCTION

Since 1982, the Department of Renewable Resources (DRR) and the Northern Canada Power Commission (NCPC), now the Northwest Territories Power Corporation (NWTPC), have been cooperating in a program to provide ospreys (Pandion haliaetus) with artificial nest platforms on the Snare transmission line. Ospreys build very large stick nests which, when wet, can bridge the gap between insulators on hydroelectric transmission lines causing short circuits and costly power outages. The program was designed both to protect ospreys and to prevent costly power losses by providing the birds with platforms which locate the nests in a safe position above the lines and insulators. K.G. Poole (1985) documented the program's history, description of the platforms, and results of the program's first three years. This report updates Poole's report by documenting the subsequent three years of work undertaken from 1985 to 1987.

METHODS

Methods followed those reported by K.G. Poole (1985). Surveys were conducted by helicopter or Cessna 185 two or three times during the breeding season. Nest occupancy was recorded during the June survey. Nest platforms were removed or erected during the power shut-down for annual maintenance in August. Productivity data were recorded during August. A nest was considered occupied if adults were present around a new or old nest and/or if eggs or young were seen in the nest. Nests were considered to be successful if young of advanced age (> ca. 35 days) were seen in the nest or if young were thought to have fledged prior to the survey. Strictly speaking, nests cannot be considered to have been successful or productive until the young successfully leave the nest; however, little precision is lost by treating advanced nestlings as having fledged successfully.

RESULTS

Three surveys were conducted in 1985. Table 1 presents occupancy and productivity data. Six of the 8 platforms present were occupied. One other occupied nest was located directly on a power pole (Pole #469). At three nests (Pole #536, #583, and #602), fledging had probably already occurred when the survey was done on 17 August. At four others, nest success was established. One new nest platform was erected on Pole #469. Mean brood size in the four nests in which young could be counted was 2.00 (SD = 0.82). The mean number of young per occupied nest was 2.00.

Two surveys were conducted in 1986 (Table 1). Five of the nine platforms were definitely occupied, another platform (Pole #36) was possibly occupied, and one site without a platform was occupied. There was one abandoned nest (Pole #50) representing a failed nesting attempt. Six of the 7 successful nests produced a total of 14 advanced nestlings (mean brood size = 2.33, SD = 0.82; mean number of young per occupied nest = 2.00). One nest platform was erected at Pole #548.

Two surveys were done in 1987 (Table 1). Six of the 10 platforms were definitely occupied. One site without a platform was occupied (Pole #50), and another was possibly occupied (Pole #636). Two empty nests represented failed nesting attempts. Of the 9 (possibly 10) occupied nests, 7 were successful with a mean brood size of 2.33 (SD = 0.52, n=6; mean number of young per occupied nest = 1.81). The nest platform at Pole #36 was removed because it had never been occupied since it was put up in 1982. This platform was still in excellent condition and was moved to Pole #50.

Table 1. Records for 1985 of osprey nesting activities on transmission hydroelectric poles. Occ = occupied during the egg-stage, PR = successful in raising young to late-nestling stage, EN = empty nest.

	1985			1986		1987	
	21	2	17	26	9	25	15
Pole #	June	July	August	June	August	June	August
36	- *	- *	- *	- *	- *	- *	-
38	Occ*	Occ*	PR* 2 yg	- *	- *	- *	- *
50	-	-	-	Occ	EN	Occ	PR* 3 yg
90	EN	EN	EN	-	-	-	-
142	EN	-	-	-	-	-	-
296	-	-	-	-	-	EN	EN
319	-	-	-	-	-	Occ	EN
410	-	-	-	-	-	EN	EN
469	Occ	Occ	PR* 1 yg	Occ*	PR* 2 yg	Occ*	PR?*
505	EN*	EN*	EN*	- *	- *	- *	- *
536	Occ*	Occ*	PR?*	- *	- *	- *	- *
548	-	-	-	Occ	PR* 3 yg	Occ*	PR* 2 yg
583	Occ*	Occ*	PR?*	Occ*	PR* 3 yg	Occ*	PR* 2 yg
602	Occ*	Occ*	PR?*	Occ*	PR* 3 yg	Occ*	PR* 3 yg
636	EN	EN	EN	-	-	Occ	EN
657	Occ*	Occ*	PR* 3 yg	Occ*	PR* 1 yg	Occ*	PR* 2 yg
679	-	-	EN	-	-	-	-
709	Occ*	Occ*	PR* 2 yg	Occ*	PR* 2 yg	Occ*	PR* 2 yg
TOTAL	7 Occupied 7 Productive			7 Occupied 6 Productive		9 Occupied 7 Productive	
Proportion of occupied nests productive	1.00			0.86		0.78	
# young /occupied nest	2.00			2.00		1.81	
# young /successful nest	2.00			2.33		2.33	

* = platform present on pole

In 1986 and 1987, hatch was beginning at a few of the nests when the occupancy surveys were done on 25 and 26 June. An estimate of mean hatch date would then be about 1 July. Given a mean nesting period of 51 days (44-59 days, Newton 1979), a normal fledging date would be about 20 August. In 1985, nestlings at 3 of the 7 apparently productive nests had left the nest by 17 August. In 1987, one nest had already fledged young by 15 August and development of the young at Pole #50 was nearly complete. A mean fledging date of 20 August, therefore, seems reasonable. This is 7-15 days earlier than indicated by K.G. Poole (1985) for the years 1982-1984.

DISCUSSION

Numbers of occupied and productive nests have remained remarkably constant over the seven years of the program (Fig. 1). The power line supports about seven pairs of ospreys of which six are usually successful in raising young to the advanced nestling stage.

Ospreys are not as territorial as most other raptor species. They are known to nest colonially where food resources are abundant and concentrated (Newton 1979). With 200+ suitable poles on the Snare transmission line (K.G. Poole 1985), greater concentrations of nesting ospreys suggests that food resources and not nest sites are limiting the number of breeding ospreys. The artificial platform project has resulted in no increase in number of nesting pairs suggesting that planners of future power lines might incorporate nesting platforms into their designs without fears that it will result in ever-increasing numbers of ospreys.

Mean number of advanced young per successful nest (brood size) varied from 2.00 in 1985 to 2.33 in both 1986 and 1987. These values equal or exceed the largest mean brood sizes reported (e.g., 2.11, A. Poole 1985; 2.2 -2.3, Prevost et al. 1978; 2.06, Stuart and Houston 1983; 2.00, van Daele and van Daele 1982). The mean number of young per occupied nest varied form 1.81 in 1987 to 2.00 in 1985 and 1986. Henny and Wight (1969) suggest that number of young per occupied nest must be between 0.95 and 1.30 for an osprey population to remain stable in numbers. On the basis of this "recruitment standard", the Snare population clearly has the capacity for population increase. It is not possible to compare the 1985-87 values with data from 1982-84 because earlier

Figure 1. Number of occupied and productive osprey nests on the Snare transmission line between 1982 and 1987.

surveys were not done at optimal times during the breeding season.

Table 2 provides data on the year in which platforms were put up and the number of years they were occupied. The total reoccupancy rate for platforms was 73% (24/33) based upon removal of the first year of the platform's existence (because platforms were only placed on occupied poles) and data for the platform on Pole #36 which was never used. The most consistently used platforms are the most northerly (#548, #583, #602, #657, #707) each of which has been used every year that platforms were available. By contrast, occupancy in the extreme southern end of the power line has been erratic. It is not certain whether this is a result of disturbance or less suitable habitat.

Table 2. Year in which artificial nest platforms were place on power poles and numbers of year they were used by ospreys.

Pole#	Year Erected	Years Occupied/ Years Available
36	1982	0/6*
38	1982	4/6
50	1987	1/1
469	1985	3/3
505	1984	1/4
536	1984	2/4
548	1986	2/2
583	1986	2/2
602	1983	5/5
657	1983	5/5
709	1983	5/5
		33/46

* Platform removed 1987.

RECOMMENDATIONS

It is recommended that there continue to be two helicopter flights per year to monitor osprey nests along the Snare transmission line as long as the line is operational. The occupancy survey should occur sometime in the last two weeks of June. The productivity survey and platform placement should occur in conjunction with the annual maintenance shut-down of the line. The optimal time is in the first or second week of August.

The power-line is scheduled for replacement by 1990-91. NWTPC will remove the poles and wire soon after closure of the line. It is recommended that the 10 poles currently bearing platforms by guyed down and allowed to stand. This will provide nesting opportunities for ospreys at minimal cost over the next 10-20 years.

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